Efficient Available Bandwidth Usage in
Transmission of Compressed Video Data

ABSTRACT OF THE DISCLOSURE

Described herein are systems and methods for multiplexing and transmitting video data. The systems and methods use excess bandwidth in a channel available after meeting minimum transmission requirements for all bitstreams. A network device of the invention flexibly allocates this available bandwidth to minimize further rate reduction. More specifically, the network device periodically determines the available bandwidth, and divides the available bandwidth among multiple incoming bitstreams being multiplexed in order to increase downstream decoder buffer levels. By maintaining increased decoder buffer levels, future rate reduction of the video data may be avoided or applied to a lesser degree. Minimizing rate reduction in this manner improves bandwidth usage efficiency, and thus improves video data transmission and end-user output video quality.